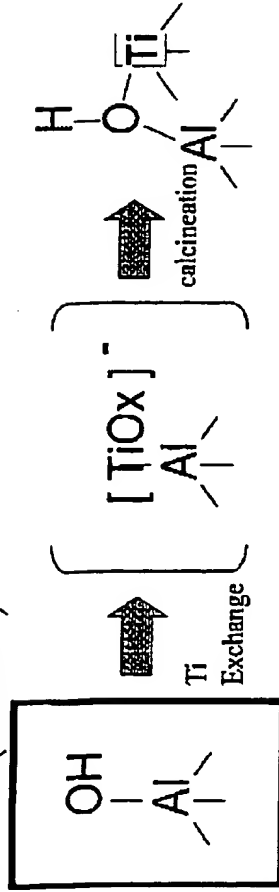


Difference between catalyst 1 and catalyst 5

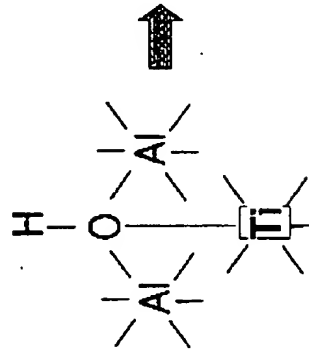
Basic OH (3780cm^{-1})



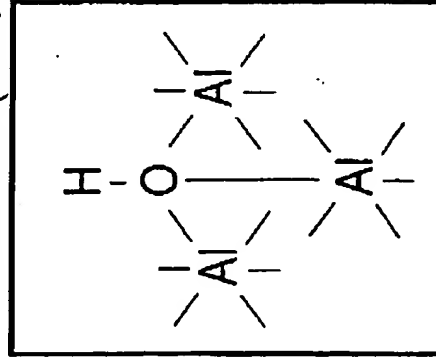
(Ia)

Decreases in basic OH
→ decreases in interaction
with Heteropolyacid

Calcination at low temperature (120°C)

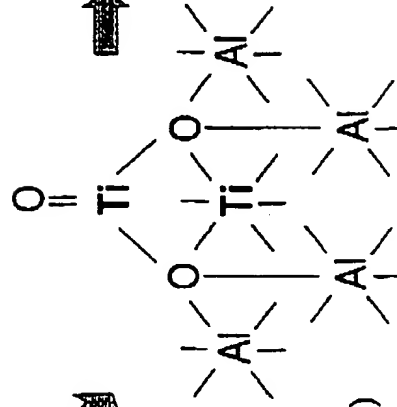


Acidic OH (3700cm^{-1})



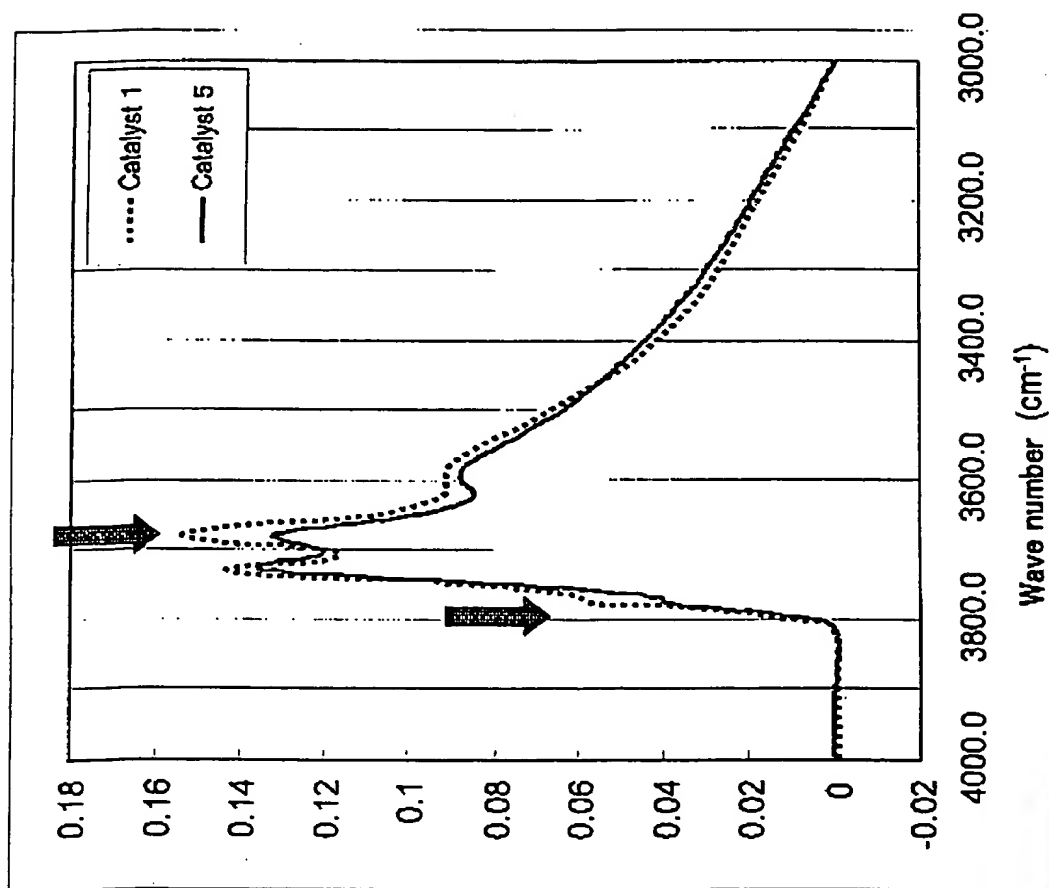
(IIIa)

Keeping acidic OH
→ high acidity
→ high hydrogenation



Decrease in acidic OH
→ low acidity
→ low hydrogenation

Calcination at high temperature (500°C)



IR Chart Catalyst 1 and Catalyst 5